Additional Cues Derived from Three Dimensional Image Processing to Aid Customised Reconstruction for Medical Applications

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Abstract:

Three dimensional (3D) image processing and visualisation methods were applied in craniomaxillofacial surgery for preoperative surgical procedures and surgery planning. Each patient differed in their formation of cranium and facial bones, hence requiring customised reconstruction to identify the defect area and to plan procedural steps. This paper explores the processing and visualisation of patients' data into 3D form, constructed from flat two dimensional (2D) Computed Tomography (CT) images. Depth perception has been useful to identify certain regions of Interest (ROI) elusive in 2D CT slices. We have noted that the 3D models have exemplified the depth perception with the provision of additional cues of perspective, motion, texture and steropsis. This has led to the improvement of treatment design and implementation for patients in this study.

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